

OFFICE OF GENERAL COUNSEL

OIL AND GAS DOCKET NO. 09-0273412

THE APPLICATION OF BOSQUE DISPOSAL SYSTEMS, LLC TO AMEND ITS COMMERCIAL DISPOSAL PERMIT PURSUANT TO STATEWIDE RULE 9 FOR THE ROSE LEASE, WELL NO. 1, NEWARK, EAST (BARNETT SHALE) FIELD, JOHNSON COUNTY, TEXAS

OIL AND GAS DOCKET NO. 09-0273982

THE APPLICATION OF BOSQUE DISPOSAL SYSTEMS, LLC TO AMEND ITS COMMERCIAL DISPOSAL PERMIT PURSUANT TO STATEWIDE RULE 9 FOR THE LUNA LEASE, WELL NO. 2, NEWARK, EAST (BARNETT SHALE) FIELD, JOHNSON COUNTY, TEXAS

OIL AND GAS DOCKET NO. 09-0274290

THE APPLICATION OF BOSQUE DISPOSAL SYSTEMS, LLC TO AMEND ITS COMMERCIAL DISPOSAL PERMIT PURSUANT TO STATEWIDE RULE 9 FOR THE SOPHIA SWD LEASE, WELL NO. 2, NEWARK, EAST (BARNETT SHALE) FIELD, JOHNSON COUNTY, TEXAS

HEARD BY: Andres J. Trevino, P.E. - Technical Examiner
Marshall F. Enquist - Legal Examiner

APPEARANCES:

APPLICANT:

John Soule
Kerry A. Pollard P.E.
Chris Kapcsos

REPRESENTING:

Bosque Disposal Systems, LLC

PROCEDURAL HISTORY

Applications Filed:	August 25, 2011, October 24 & 27, 2011
Requests for Hearing:	October 24, 2011, December 6, 2011 & January, 2, 2012
Notice of Hearing:	January, 9 & 18, 2012
Date of Hearing:	February 8, 2012
Proposal For Decision Issued:	February 29, 2012

EXAMINERS' REPORT AND PROPOSAL FOR DECISION**STATEMENT OF THE CASE**

Bosque Disposal Systems, LLC ("Bosque") requests to amend its commercial disposal authority pursuant to Statewide Rule 9 for its Rose Lease, Well No. 1 (Permit No.12658), Luna Lease, Well No. 2 (Permit No.12855) and Sophia SWD Lease, Well No.2 (Permit No.12832) in the Newark, East (Barnett Shale) Field, Johnson County, Texas. Bosque proposes to increase the daily injection volume from 25,000 BWPD to 30,000 BWPD for each disposal well.

On October 11, 2011, November 9, 2011 and November 18, 2011 Commission staff administratively denied each amended commercial disposal permit pursuant to Statewide Rule 9 because the application was inconsistent with an informal directive from the Railroad Commissioners to staff that staff is not authorized to administratively grant injection rates in excess of 25,000 barrels per day for disposal wells injecting into the Ellenburger formation within the Newark, East (Barnett Shale) Field area. The Commission staff did not appear at the hearing to oppose the application.

The examiners recommend that the applications for amended commercial disposal permits pursuant to Statewide Rule 9 be approved.

DISCUSSION OF THE EVIDENCE**Applicant's Evidence**

The Rose Lease, Well No. 1, was drilled to a total depth of 11,428 feet and completed in April 2008 as a commercial disposal well in the Ellenburger formation from 9,104 feet to 11,250 feet. The well is located on a 4.25 acre tract that is situated approximately 3.0 miles northwest of the town of Alvarado, Texas.

The well has 9 5/8" surface casing that is set at 1,750 feet and is cemented to the surface with 785 sacks. The 7" production casing is set at 11,428 feet and is cemented to

a depth of 7,009 feet in two stages with 350 sacks (DV Tool set at 9,009 feet). The well is equipped with 4 ½" tubing with a packer set at 8,927 feet. The Texas Commission on Environmental Quality ("TCEQ") recommends that usable-quality ground water be protected to a depth of 1,695 feet below the land surface.

The permitted disposal interval is the Ellenburger formation between 8,994 feet and 11,500 feet. The permitted disposal volume is 25,000 BWPD with a maximum injection pressure of 2,500 psig. Bosque requests to increase the daily injection volume to 30,000 BWPD. The maximum injection pressure would remain at 2,500 psig.

The Luna Lease, Well No. 2, was drilled to a total depth of 9,806 feet and completed in May 2009 as a commercial disposal well in the Ellenburger formation from 9,220 feet to 9,634 feet. The well is located on a 5.32 acre tract that is situated approximately 4.8 miles north of the town of Joshua, Texas.

The well has 9 5/8" surface casing that is set at 1,223 feet and is cemented to the surface with 450 sacks. The 7" production casing is set at 9,806 feet and is cemented to a depth of 6,802 feet in two stages with 600 sacks (DV Tool set at 8,802 feet). The well is equipped with 4 ½" tubing with a packer set at 8,128 feet. The Texas Commission on Environmental Quality ("TCEQ") recommends that usable-quality ground water be protected to a depth of 1,145 feet below the land surface.

The permitted disposal interval is the Ellenburger formation between 8,214 feet and 10,000 feet. The permitted disposal volume is 25,000 BWPD with a maximum injection pressure of 4,610 psig. Bosque requests to increase the daily injection volume to 30,000 BWPD. The maximum injection pressure would remain at 4,610 psig.

The Sophia SWD Lease, Well No. 2, was drilled to a total depth of 11,508 feet and completed in December 2010 as a commercial disposal well in the Ellenburger formation from 10,578 feet to 11,052 feet. The well is located on a 2.0 acre tract that is situated approximately 0.9 miles northeast of the town of Lillian, Texas.

The well has 9 5/8" surface casing that is set at 1,900 feet and is cemented to the surface with 450 sacks. The 7" production casing is set at 11,508 feet and is cemented to a depth of 7,500 feet, per CBL, in two stages with 900 sacks (cement squeeze at 9,950 feet). The well is equipped with 4 ½" tubing with a packer set at 9,306 feet. The Texas Commission on Environmental Quality ("TCEQ") recommends that usable-quality ground water be protected to a depth of 1,845 feet below the land surface.

The permitted disposal interval is the Ellenburger formation between 9,000 feet and 13,000 feet. The permitted disposal volume is 25,000 BWPD with a maximum injection pressure of 4,500 psig. Bosque requests to increase the daily injection volume to 30,000 BWPD. The maximum injection pressure would remain at 4,500 psig.

There are a total of 30 producing Barnett Shale horizontal wells, 5 permitted locations and one permitted disposal well located within a ½ mile radius of review of each

of the three disposal wells. All of the wells have surface casing set or that will be set and cemented to surface below the usable quality water. All of the wells are completed with true vertical depths within the Barnett Shale averaging 7,800 feet. There is one commercial disposal well operated by CCS Midstream Service (Vortex SWD No.1) that is located approximately 2,400 feet to the south of the Rose No. 1 disposal well. The Vortex SWD No.1 is completed in such a manner that fluids will be confined to the disposal interval and the base of the usable quality water is protected by adequate surface casing.

Bosque submitted a monthly graph of their injection volumes at each of their disposal wells that showed the disposal facilities are at or near capacity since December 2011. The majority of disposal well volume (90%) comes from completed producing wells in the Barnett Shale while the remaining volume (10%) comes from frac fluid flowback. Producing Barnett shale wells can produce up to 100 to 200 BWPd. Many operators are installing produced water pipeline gathering systems that pipe water directly to disposal wells. As a result of the increasing completions and increasing water production in the area, Bosque is requesting additional capacity to meet market demand.

A review of the operating pressures of each disposal well indicates the wells will be able to handle additional capacity without exceeding permitted injection pressures.

Bosque submitted letters from Chesapeake, Devon and several trucking and support companies in support of Bosque's request to increase its disposal capacity to 30,000 BWPd. These operators and trucking companies believe that an increase in capacity at Bosque's disposal facilities will be used and would decrease the amount of hauling saltwater to other disposal well sites further away.

The Commission has previously approved increasing the disposal capacity of the Metro SWD Lease, Well No. 1 from 25,000 to 30,000 BWPd by Order issued in Oil & Gas Docket 09-0268543 dated July 26, 2011.

Bosque Disposal Systems, LLC has a current approved Form P-5 (Organization Report), a posted \$25,000 financial assurance letter of credit and no pending Commission enforcement actions.

EXAMINERS' OPINION

The examiners recommend approval of the applications to increase the permitted injection volume for the existing commercial disposal authority. Approval of the amended application is in the public interest. The Barnett Shale development area encompasses Johnson County and the adjacent Tarrant County. Disposal wells are the best means for disposing of produced frac and salt water. Bosque has shown that the increased disposal capacity is necessary to accommodate the increasing Barnett Shale development that is ongoing in this liquids rich area within hauling distance of Bosque's Rose Lease, Well No. 1, Luna Lease, Well No. 2, Sophia SWD Lease, Well No. 2. Several operators are proposing to build pipelines to transport produced salt to the subject disposal facilities. Bosque will be unable to tie into the pipelines and dispose of additional produced saltwater without approving additional capacity.

There is adequate separation between the top of the injection intervals and the base of the Barnett Shale in each well. The base of the Barnett Shale formation varies between 7,140 feet to 8,470 feet in each well. The permitted disposal interval tops are in the Ellenburger formation between 8,214 feet and 9,000 feet. In each well, the distance between the top of the permitted disposal interval and the base of the Barnett Shale formation is between 503 feet (shortest) in the Sophia SWD No. 2 and 1,074 feet (longest) in the Luna No. 2. As result, the examiners believe that the increased injection will be contained within the Ellenburger formation and will not pose a threat to the productive Barnett Shale formation.

When the Bosque injection facilities are at capacity, saltwater disposal trucks have to travel to another facilities located at greater distances requiring additional truck traffic miles to be driven. The proposed increased injection capacity will eliminate the additional mileage traveled on public highways by the saltwater disposal trucks. Additionally, without the increased capacity, Bosque will not be able to accommodate additional produced saltwater to be transported by future pipeline gathering systems currently under construction. Carrying produced salt water by pipeline rather than truck transportation is more economical and reduces the environmental hazards.

The examiners recommend that the amended applications for a commercial disposal permits pursuant to Statewide Rule 9 be approved and that the Commission adopt the following Findings of Fact and Conclusions of Law.

FINDINGS OF FACT

1. Notice of this application and hearing was provided to all persons entitled to notice.
2. The proposed injection capacity increases, from 25,000 BWPD to 30,000 BWP, into the three subject disposal wells, will not endanger useable quality water.
 - a. For the Rose Lease, Well No. 1, the Texas Commission on Environmental Quality ("TCEQ") recommends that usable-quality ground water be protected to a depth of 1,695 feet below the land surface. The well has 9 5/8" surface casing that is set at 1,750 feet and is cemented to the surface with 785 sacks.
 - b. For the Luna Lease, Well No. 2, the Texas Commission on Environmental Quality ("TCEQ") recommends that usable-quality ground water be protected to a depth of 1,145 feet below the land surface. The well has 9 5/8" surface casing that is set at 1,223 feet and is cemented to the surface with 450 sacks.
 - c. For the Sophia SWD Lease, Well No. 2, the Texas Commission on Environmental Quality ("TCEQ") recommends that usable-quality

ground water be protected to a depth of 1,845 feet below the land surface. The well has 9 5/8" surface casing that is set at 1,900 feet and is cemented to the surface with 450 sacks.

- d. There are numerous producing Barnett Shale horizontal wells located within a ½ mile radius of review of each disposal well. All of the wells have surface casing set and cemented to surface below the usable quality water.
3. The proposed injection capacity increases into the three subject disposal wells, will not endanger production from other oil, gas or mineral bearing formations.
 - a. For the Rose Lease, Well No. 1, the 7" production casing is set at 11,428 feet and is cemented to a depth of 7,009 feet in two stages with 350 sacks (DV Tool set at 9,009 feet). The well is equipped with 4 ½" tubing with a packer set at 8,927 feet. The base of the Barnett Shale formation is at 8,020 feet. The permitted disposal interval is the Ellenburger formation between 8,994 feet and 11,500 feet, which is almost 974 feet below the base of the Barnett Shale formation.
 - b. For the Luna Lease, Well No. 2, the 7" production casing is set at 9,806 feet and is cemented to a depth of 6,802 feet in two stages with 600 sacks (DV Tool set at 8,802 feet). The well is equipped with 4 ½" tubing with a packer set at 8,128 feet. The base of the Barnett Shale formation is at 7,140 feet. The permitted disposal interval is the Ellenburger formation between 8,214 feet and 10,000 feet, which is almost 1,074 feet below the base of the Barnett Shale formation.
 - c. For the Sophia SWD Lease, Well No. 2, the 7" production casing is set at 11,508 feet and is cemented to a depth of 7,500 feet (per CBL) in two stages with 900 sacks (cement squeeze at 9,950 feet). The well is equipped with 4 ½" tubing with a packer set at 9,306 feet. The base of the Barnett Shale formation is at 8,470 feet. The permitted disposal interval is the Ellenburger formation between 9,000 feet and 13,000 feet, which is almost 530 feet below the base of the Barnett Shale formation.
 4. Amending the commercial disposal permit for the three subject disposal wells, is in the public interest because it will provide needed commercial disposal capacity to accommodate the Barnett Shale development that is ongoing in the area of the facilities.
 - a. The Barnett Shale development area encompasses Johnson and Tarrant Counties.

- b. When the Bosque injection facilities are at capacity, saltwater disposal trucks have to travel to another facilities located at greater distances requiring additional truck traffic miles to be driven. The proposed increased injection capacity will eliminate the additional mileage traveled on public highways by the saltwater disposal trucks.
 - c. Without the increased capacity, Bosque will not be able to accommodate future produced saltwater to be transported by future pipeline gathering systems currently under construction. It is more favorable to carry produced salt water by pipeline over truck transportation.
 - d. The increased disposal capacity will also eliminate the additional 60 miles traveled, per load, on public highways by each saltwater disposal truck turned away.
- 5. The Commission has previously approved increasing the disposal capacity of the Metro SWD Lease No. 1 from 25,000 to 30,000 BWPD by Order, issued by Oil & Gas Docket 09-0268543 dated July 26, 2011.
 - 6. Bosque Disposal Systems, LLC has a current approved Form P-5 (Organization Report), a posted \$25,000 financial assurance letter of credit and no pending Commission enforcement actions.

CONCLUSIONS OF LAW

- 1. Proper notice was issued in accordance with the applicable statutory and regulatory requirements.
- 2. All things necessary to give the Railroad Commission jurisdiction to consider this matter have occurred.
- 3. Approval of the application will not harm useable quality water resources, will not endanger oil, gas, or geothermal resources, will promote further development in the area of Johnson County and is in the public interest pursuant to Sec. 27.051 of the Texas Water Code.
- 4. Bosque Disposal Systems, LLC has met its burden of proof and its application satisfies the requirements of Chapter 27 of the Texas Water Code and the Railroad Commission's Statewide Rule 9.

EXAMINERS' RECOMMENDATION

Based on the above findings of fact and conclusions of law, the examiners recommend that the amended applications of Bosque Disposal Systems, LLC for increased disposal authority in its Rose Lease, Well No. 1, Luna Lease, Well No. 2 and the Sophia SWD Lease, Well No. 2 be approved, as set out in the attached Final Orders.

Respectfully submitted,

Marshall F. Enquist
Legal Examiner

Andres J. Trevino, P.E.
Technical Examiner